

REMARKS

Summary of the Office Action

Claims 17-31 are pending in the instant application.

Claims 17-31 have been rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. Claims 17-31 also have been rejected under 35 U.S.C. § 103(a) as being obvious from Parodi et al. U.S. Patent No. 5,651, 823 ("Parodi") in view of Prentakis U.S. Patent No. 4,775,281 ("Prentakis"), Cheng. U.S. Patent No. 6,053,688 ("Cheng"), Yonemizu et al U.S. Patent No. 6,053,688 ("Yonemizu"). JP 7201949 ("Japanese publication") or Tateyama et al. U.S. Patent No. 5,442,246 ("Tateyama").

The Examiner also has objected to the drawings as not showing features of claims 22-24 and 27-29.

Summary of Applicant's Reply

With respect to the features of claims 22-24 and 27-29, applicant respectfully submits that the claimed features are readily understood from the specification and the current FIGS. Further amendments to the FIGS. are only likely to add clutter without adding to the understanding of the claimed features. For example, the feature of claim 29 which calls for two external handling devices is readily understood without drawing in a second external handling device in the FIGS. Therefore, applicant respectfully requests that the objection to the drawings be withdrawn. If however the Examiner insists on drawing amendments, applicant will agree to cancel the objected-to claims without prejudice, to advance allowance of the application.

Applicant has amended claim 17 for clarity. In particular, claim 17 has been amended to indicate that the wafers to be processed are received from a wafer-holding cassette

into a wafer processing chamber. Applicant respectfully submits that after this amendment, the claims have definite language and conform to all requirements of § 112.

Applicant respectfully traverses the prior art rejection of claims 17-31.

Prior art rejection under 35 U.S.C. 103(a)

Independent claim 17

Applicant's invention relates to an integrated apparatus for transferring wafers from a wafer-holding cassette into, and within, a wafer processing chamber that has hot and cold plates. The wafer processing chamber may be a vacuum isolated chamber. (See e.g., specification ¶ [0002]). The inventive apparatus includes an external handler and an internal handler. The external handler transfers wafers between the cassette and into the processing chamber. The internal handler is disposed in a cooled area of the processing chamber. Further, the internal handler is configured to receive transferred wafers from the external handler and to move wafers between the hot and cold plates in the processing chamber. In particular, the elements of claim include an internal handler which is "disposed in a cooled area of the processing chamber" and is configured "to interact with said grippers of [the handler external to the processing chamber] to receive a wafer therefrom."

Applicant notes that Parodi describes a cluster tool for substrate photolithography. Parodi's cluster tool has several process chambers or modules stacked together (See e.g., FIG. 1). Each chamber or process module has a single robot (13) which can move a substrate wafer between I/O cassettes (19, 20), coating stations (21), buffer stations (24, 25), and heating/cooling stations (17). (See e.g., FIGS. 1 and 5A-5D). As noted by the Examiner, Parodi also shows a linear transfer mechanism for transferring wafers between heating and cooling plates (124, 128, and 126) within the heating/cooling stations (17) (See e.g., FIGS. 7 and 10b). However, the

wafers are not transferred directly between the robot end effector (14) and the linear transfer mechanism arms (208 or 210). In particular, Parodi does not show, teach or suggest an internal handler which is "disposed in a cooled area of the process chamber," and which is "arranged to interact with said grippers of said external handling device to receive a wafer therefrom" as required by applicant's claim 17.

The Examiner correctly notes that Prentakis and Cheng disclose a "fork arm" effector for unloading and unloading wafers from a cassette. However, these patents like Parodi, fail to show, teach or suggest an internal handler which is "disposed in a cooled area of the processing chamber," and which is "arranged to interact with said grippers of said external handling device to receive a wafer therefrom " as required by applicant's claim 17.

Yonemuzi describes an apparatus for washing wafers. The Examiner correctly notes that Yonemuzi discloses a transfer arm (3) for receiving wafers from a cassette.

Yonemuzi's transfer arm (3) is external to, and delivers wafers to, processing unit (21 to 28). (See e.g., col. 6 lines 4-17). However, Yonemuzi like Parodi fails to show, teach or suggest an internal handler in the processing units (21-28) which is "disposed in a cooled area of the processing chamber," and which is "arranged to interact with said grippers of said external handling device to receive a wafer therefrom" as required by applicant's claim 17.

With reference to claims 29 and 20 respectively, the Examiner has noted that the Japanese publication, which is titled "Continuous Heat Treatment Apparatus " discloses a one-way system, and that Tateyama describes an arrangement of a heating unit behind a cooling unit. However, applicant notes these references like Parodi fail to show, teach or suggest an internal handler which is "disposed in a cooled area of the processing chamber," and which is "arranged

to interact with said grippers of said external handling device to receive a wafer therefrom" as required by applicant's claim 17.

Thus, neither Parodi nor any of the cited references, whether taken individually or in combination show, teach or suggest all of the elements of claim 17. Thus claim 17 is patentable over Parodi and the cited references. Further, claims 18-31 depend on claim 17. Therefore these dependent claims 18-31 also are patentable over Parodi and the cited references.

Conclusion

For at least the reasons set forth above, applicant requests that the rejections of claim 17-31 be withdrawn. Applicant further respectfully submits that this application is now in condition for allowance. Reconsideration and prompt allowance of which are requested.

Respectfully submitted,

BAKER BOTTS L.L.P.

By: 

Manu J. Tejawani
Patent Office Reg. No. 37,952

30 Rockefeller Plaza
44th Floor
Previously presented York, NY 10012-4498

Attorneys for Applicants
212-408-2500